

used to indicate growths of gonococci obtained from different patients without regard to cultural features.

I would like to enquire in which sense it is used in the discussion tonight.

Dr. M. Wolff: Dr. C. C. Worden read a paper on this subject at the last A. M. A. meeting here. He claimed that the autolysis of the bodies was due to lytic changes, due mostly to moisture. By growing the gonococci on a dry media, lysis is prevented and the fats or lipoids can be extracted. He claims that these lipoids are the active principles of the antigen, and an antigen made in this way gave him much better results in the cases he reported. We have some of his antigen and so far our results have been better, but the number of cases is not yet great enough to make a definite report. The test is important, especially when a positive is found. When a perfect antigen is found the test will be greater enhanced and this latest work seems to be a step in that direction.

Dr. E. E. Johnson: We obtain the different strains by culturing the organisms from patients suffering with different stages of the disease. For instance, we culture from several patients with a primary infection and several with a chronic infection of several months standing, and from several patients with an infection of several years standing. In the latter cases we usually culture a Gram-positive diplococcus with all the morphological characters of the gonococcus. This organism we believe to be an involutionary form of gonococcus which has lost its staining characteristics, possibly due to the acidity of the mucosa. We can also bring this organism back to its original Gram-negative staining characteristics by repeated inoculations. We always use these organisms in our gonococcus antigens.

Dr. Leonard: Can You grow gonococci from a chronic prostatic infection?

Dr. E. E. Johnson: We were unable to culture Gram-negative diplococci but succeeded in culturing, in a great many cases, the Gram-positive diplococcus which I have already mentioned.

Dr. Krotoszyner, closing discussion: I have purposely dilated in my paper upon the method in which the various antigens are prepared, in order to demonstrate, by these means, that difference in test-results, might in all probability be due to different potency of antigens. In the difficulty of obtaining an antigen of high potency lies, to my mind, the weakness of the test. This point is best illustrated by comparing the methods, by which the antigens for syphilis and gonorrhea are obtained. The antigen in syphilis is the extract of a parenchymatous organ like the liver of a syphilitic foetus, while the antigen in gonorrhea is obtained from a series of cultures of gonorrhoeic pus. As long, therefore, as we are not in possession of a standardized antigen, the complement fixation test for gonorrhea cannot yet assume the important position in the diagnosis of gonorrhea that the Wassermann now obtains for syphilis.

SEPTIC TEETH.

By JOHN S. MARSHALL, M. D., Sc. D., F. A. C. S.
(Captain U. S. Army, Retired.)

(Continued from page 407, October issue.)

In the chronic form of the disease, if the X-ray picture shows a straight root, and only slight involvement of the bony structure about the apex, sterilization and root canal filling should be attempted, but, if it does not respond after a fair trial, it is better, in view of the dangers from chronic general sepsis to extract the tooth.

(d). Teeth which have been treated by removal of the pulp and filling of the root-canal, but in which the dentinal tubuli and fibrillae have not been thoroughly sterilized.

In an earlier portion of the paper, we called attention to the proportions of the organic and inorganic constituents of bone and dentine, and it was shown that the organic matter in dentine was nearly as great as that in bone.

We also stated the generally recognized fact that sepsis from bone and dental tissue is exceedingly virulent in character. Dr. William Hunter, of London, considers this to be the most grave of all forms of sepsis.

In the preceding remarks we have been dealing with sepsis from decomposing and gangrenous soft tissues. We now deal with sepsis as produced by the decomposition of the organic matter found in the calcified structures; namely, bone and dentine.

When nutrition is cut off from any part of the body, it dies. In other words, it is necrosed. If this happens to be a portion of the soft tissues, the necrosed portion is soon sloughed off. If it be a calcified structure, like bone, the necrosed portion is separated from the living by a somewhat similar but much slower process. Only tissues which have a blood circulation have the power to separate the dead tissues from the living.

The hard, or calcified, tissues of the teeth have no blood circulation, as a rule. The only exception is to be found—and that only occasionally—in the thicker portions of the cementum near the apex of the root, where a few haversian systems may be found.

Calcified dental tissues, therefore, have no power to separate a dead portion from a living one, and consequently have no power to reproduce tissues that has been lost by disease—as in caries, or by traumatism.

When Nature desires to rid herself of an offending tooth, a low type of chronic inflammation is set up in the pericementum and, little by little, the alveolus which gives support to the tooth is removed—in senile conditions by resorption—(senile atrophy), and in septic conditions by suppuration and caries, (molecular degeneration, or necrobiosis), and the tooth is eventually exfoliated.

Teeth of class (d) type are very rarely comfortable. They are subject to periodic attacks

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of slight soreness, but which is not usually in evidence at first, except upon palpation, percussion, or the stress of mastication. Occasionally the individual will complain of vague neuralgic pains in the jaws in the neighborhood of these particular teeth. Later, symptoms of pericementitis develop; the tooth becomes sore and loose; pus exudes from the alveolus, or can be expressed from around the margins of the gums by a stroking motion of the finger. In its symptoms it closely simulates the objective inflammatory phenomena of what is generally termed pyorrhea alveolaris. These phenomena are produced by the toxic products of the putrefactive decomposition of the 28% of organic matter in the dentine, which find their way through the tubuli of the dentine, as through a filter, to the cementum, and through it to the pericementum, setting up a septic inflammation in the alveolar tissue, the products of which are absorbed and disseminated through the system, producing a septic toxæmia.

What shall be done with these teeth? We say, unhesitatingly, in view of the foregoing statements, they should be extracted, and the earlier this is done the better it will be for the general health of the patient.

Your essayist is old enough to have seen many changes in medical and dental practice, some of which have been for the better, some for the worse. In the early days of my professional life, it was the almost invariable practice among dentists to extract all teeth that were abscessed; thus ridding the system of the dangers which surrounded their retention. This was safe practice, and is to be commended in a majority of cases. Today, the dentist frequently treats these cases, at the request of his patients, with the hope of curing them, that a crown or bridge may be inserted. In most instances, these diseased, septic, abscessed teeth are not amenable to treatment, and would, therefore, be better out of the mouth.

With the introduction, a little over 35 years ago, of the present methods of crown and bridge work, has come the scourge of mouth sepsis; a condition which, I believe, is a very serious menace to the general health of our people and to the longevity of the race. There is a growing tendency however, upon the part of the better class of dental surgeons, who are alive to the seriousness of mouth sepsis, to condemn, in the most positive terms the present ruthless destruction of healthy dental pulps for the purpose of inserting crowns and bridges, without proper treatment and filling of the root-canals.

Crown and bridge work have their legitimate place in dental practice, and under favorable conditions and proper construction, there are no methods of replacing lost teeth that are equal to them. But the methods are abused, shamefully abused, and by those who should know better.

The difficulties which surround the proper treatment and filling of the root-canal of pulpless teeth are very considerable. There is no operation in the whole realm of dental procedures,

and I doubt if there is one in the whole field of operative surgery, that requires a greater degree of technical skill and such unlimited patience as does the perfect filling of a root-canal. Consequently, the dentist of average ability, rarely, very rarely succeeds in making a perfect operation of this class. This statement has been abundantly proven by numerous X-ray pictures.

For this reason your essayist would suggest that in the future these operations be classed as a Specialty, and only performed by men who will specialize in this direction.

Discussion.

Dr. A. L. Fisher: I think we are all obliged to Dr. Marshall for showing us details of things that are very hazy in most of our minds. We are hardly familiar with the details of the pathological processes that go on in the teeth.

I do not think there is any question of the seriousness of dental sepsis. My own personal experience has been that in these conditions of acute and chronic arthritism, etc., cleaning the teeth and putting the mouth in proper condition is of more value than any other one procedure. Sometimes results are good. Sometimes, on the other hand, they are not so good. I have seen two instances of very serious results, in cases of chronic arthritis, following from the cleaning up of the teeth. It seems like stirring up the sleeping dog. You get added sepsis. On the other hand, I have seen a considerable number of cases in which the effects have been good.

I want to steal a little of Dr. Alvarez's thunder. He showed me in an old medical journal, published in 1802, where Benj. Rush reported a case in which the patient was suffering from rheumatism of the hip, and the surgeon, observing a very bad tooth, ordered it extracted, whereupon her rheumatism cleared up.

I was also very glad to hear Dr. Marshall talk as he did about crowns. In clinic practice in particular, it is astonishing the number of crowned teeth from which one can see pus exuding, with a frightful odor coming from the mouth, presumably from these points of sepsis.

There is one other thing that has struck practically every medical man. Most patients have their own dentists and the medical man does not feel justified in telling them to change their dentist when the patient comes back to him with the teeth practically in the same condition as when he sent him to the dentist. Maybe a few gross cavities are filled, but the general sepsis is not cleared up. It is rather a delicate question—a question of ethics—what we are going to do. I believe, myself, that we should have some way of knowing some group of dentists whom the dentists, themselves, believe competent. I have been disappointed any number of times, after patients have had the teeth apparently fixed, to find the condition remaining the same. If there is any way of finding out who is competent and capable, without treading on too many toes, I think it would be of great benefit to very many patients.

Dr. W. C. Alvarez: Dr. Fisher's remarks are very true. Just as many of us need instruction in these matters, so there are many of the dentists far behind the times. I have had a number of unpleasant experiences in sending patients to confer with their dentists; and have gotten used to having men ring me up to ask what I meant by insinuating that their work was not good. Often they have filled a few cavities, leaving other teeth in bad shape, perhaps with pus oozing out of so called pyorrhea pockets. I believe our

ethical duties should terminate at this point. The dentist has had his chance and if he doesn't know enough to take it, my duty to the patient is more important; and I refer him to a dentist who does know what to do and how to do it.

I have seen some very remarkable results from cleaning up teeth in joint cases, but have also been disappointed many a time. I send also a large proportion of my stomach cases to the dentist for two reasons: Some must get rid of the pus they are swallowing, and others must fill in the gaps in their chewing surface. Many people have no chewing surface. They may have a number of teeth, but they are not like the old lady who was always thanking God for his manifold blessings; one of these was, that though she had only two teeth, they hit. Theirs do not hit. Very often the dentist does not seem to think this a serious matter; but if you examine the stools of some of those patients, you will often find great lumps of food that have gone through the tract undigested, and interfering with the assimilation of other materials.

It is very hard to know how to advise some patients in whom the X-ray shows small pus pockets at the roots of four or five teeth. Perhaps it is a woman, underweight, asthenic and enteroptotic. Can we promise her enough improvement in health to justify her in losing those teeth? Perhaps she hasn't the money to have them replaced properly. The enthusiast says: take them out. I hesitate, and feel like waiting until a greater experience has accumulated.

A number of men have worked on the theory that gastric ulcer is due to infection by mouth bacteria and have even produced ulcers in animals; but the problem seems to be much too complicated for so simple a solution. There are many other factors to be reckoned with. I have seen some cases of ulcer that suggested such an etiology, but we must always be very careful in excluding other causes. Two years ago I saw a woman with severe gastric symptoms and a mouth full of bad teeth and pus pockets. She had lost forty pounds in weight and vomited in the morning pus she had been swallowing all night. Dr. Novitzky put her mouth in perfect condition and she got better. After a few months she was still underweight and suffering. A positive Wassermann was then found, and two injections of salvarsan restored her promptly to perfect health.

Dr. C. F. Welty: I would like to ask the speaker what relation, if any, the tooth root cysts bear to root infections. It seems to contain a secretion that has flakes that glitter.

Dr. J. S. Marshall (closing discussion): I had hoped that somebody would have something to say about the suggestion I made with regard to gangrenous pulps and gastric ulcer, and that I had struck something that might be interesting from the medical and surgical standpoint. Perhaps when you think the question over a little, you may see something in it. I am not sure there is, myself, but it struck me as a very strong probability. No one knows today, I believe, what causes ulcer of the stomach anyway. It is a question that has never been settled, I mean as to its etiology.

Dr. Fisher spoke of crowns and bridges and having seen so many of the cases where pus was welling up around the cervix of the tooth upon the slightest pressure. If the crown or bridge is properly made and the tooth has been properly treated beforehand, those conditions should not obtain. When they do, they are the result of slovenly work on the part of the dentist. I am sorry to say a great many men who call themselves dentists are not dentists. They are the kind the newspapers talk about sometimes as

"tooth carpenters." Such a dentist knows nothing and cares nothing about his profession. All he is after is the shekels.

Dr. Alvarez asked about amputation of roots. I did not speak about it because I did not go especially into the treatment. I believe some of these cases can be cured by root amputation, some of them by amputation in position in situ and others by extraction and replantation. I prefer, if I can, to extract the single rooted tooth, amputate the diseased end of the tooth while I can see what I am doing, finishing it perfectly smooth, leaving no sharp edges, keeping it practically warm during the operation, opening up the pulp canal and sterilizing it thoroughly with 1:500 bi-chloride, then dehydrate it and fill the canal with gutta-percha, sealing the apical end with a gold filling so that it would be impossible for any leakage to occur, either from the tooth or from the tissues into the tooth. If I were in Chicago, where I practiced before I went into the U. S. Army, I could show you sixty or seventy cases that I treated in that way by extraction and replanting, and I never yet lost a tooth from such an operation. They all of them got well. But some of these cases that are treated by amputation in situ do not get well, because they have not been properly done. You cannot seal the apical foramen with a gold filling under such circumstances. All you can do is to put in a gutta-percha filling, which is soft and has a little chloroform in it. When the chloroform has evaporated, there is space for fluids to leak down into the tissues and cause sepsis.

Dr. Welty asked about cysts. There are several forms of cyst that we come across in the treatment of teeth. One is the inflammatory cyst that follows an abscess. The pus disappears and the cavity fills up with serum. Another form is the dentigerous cyst with a secretion that is glairy, like the albumen of the egg and has floating in it flakes of Cholesterine. These are usually the most difficult to treat and cure. But, of course, by removing the cause of irritation and thorough curetment they can be cured.

SOCIETY REPORTS

ALAMEDA COUNTY.

The following meetings were held during the month of September:

September 5th, Dr. McCleave, chairman.

The Subnormal Child, Dr. L. M. Terman, Stanford University. Discussion by Chief of Police Volmer of Berkeley and Mrs. W. Hicks of the Oakland School Department.

September 12th, Dr. E. von Adelung, chairman.

I. Pleural Effusion, Dr. P. E. Abbott. II. Recent Advances in Treatment of Tuberculosis, Dr. C. L. McVey. III. Tuberculin, Dr. Florence Sylvester. IV. Data on Pneumothorax, Dr. E. von Adelung. Illustrated by plates.

September 19th. Regular monthly meeting.

I. A Brief Review of Some of the Late Developments Along Immunological Lines, Dr. R. A. Archibald. II. The Attitude of the Physician Towards the Venereal Patient, Dr. A. M. Meads.

September 26th, Dr. Alvin Powell, chairman.

I. Vicary's Anatomy, the first anatomy published in English, Dr. G. W. Corner, Dept. of Anatomy, U. C. II. Personal Investigations into the Hygiene and Health of the Flower of the American Indians, Dr. Alvin Powell. Illustrated by stereopticon.

ELMER E. BRINCKERHOFF, Secretary.